

Application No. 09/588,407  
GAU 1733  
Filed December 10, 2000

AMENDMENT TO CLAIMS

With respect to the above-identified Office Action, please amend the Claims as follows:

**Claims 1-11 (Cancelled)**

**12. (Currently Amended) An apparatus for curing a pre-preg repair material supporting a heat curable resin for in-situ repair of a conduit, comprising:**

an elastomeric composite having a first end and a second end, wherein the composite includes a non-ferrous heating element comprising electrically conductive fibers comprised of carbon fibers, graphite fibers, carbon filaments or graphite filaments and disposed within a thermoset resin matrix wherein the electrically conductive fibers are braided or arranged helically;

a first end piece fixedly attached to the first end of the composite and having an air port for communication with a compressed air source, a vacuum port for communication with a vacuum supply source and at least one electrical cable port to convey electric current to the non-ferrous heating element from a power supply source; and

a second end piece fixedly attached to the second end of the composite, wherein the composite, the first end piece, and the second end piece form a generally hollow inflation chamber.

**13. (Original) The apparatus of Claim 12 wherein the thermoset resin is selected from the group consisting of fluorocarbon and fluorosilicone.**

**14. (Previously Presented) The apparatus of Claim 12 wherein the heating element includes a plurality of braided fibers comprising temperature tolerant fiber braids and electrically conductive fiber braids.**

**15. (Original) The apparatus of Claim 14 wherein the braided fibers interact to define a braid angle measure at +/- 45 degrees.**

**16. (Original) The apparatus of Claim 14 wherein the electrically conductive fiber braids are carbon filaments.**

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**Claim 17 (Cancelled)**

**18. (Previously Presented and Allowed) An apparatus for curing a pre-preg repair material supporting a heat curable resin for in-situ repair of a conduit, comprising:**

**an elastomeric composite having a first end and a second end, wherein the composite includes a non-ferrous heating element comprised of a plurality of filament wound carbon fibers, filament wound graphite fibers, filament wound carbon filaments or filament wound graphite filaments and disposed within a thermoset resin matrix;**

**a first end piece fixedly attached to the first end of the composite and having an air port for communication with a compressed air source, a vacuum port for communication with a vacuum supply source and at least one electrical cable port to convey electric current to the non-ferrous heating element from a power supply source; and**

**a second end piece fixedly attached to the second end of the composite, wherein the composite, the first end piece, and the second end piece form a generally hollow inflation chamber.**

**19. (Previously Presented and Allowed) The apparatus of Claim 18 wherein the wound fibers interact to define an angle measure at +/- 45 degrees.**

**20. (Currently Amended) A method for repairing a damaged section of a conduit comprising the steps of:**

**providing an elastomeric composite having a first and second end, wherein the composite includes a non-ferrous electrically conductive heating element comprising electrically conductive fibers comprising carbon fibers, graphite fibers, carbon filaments or graphite filaments and disposed within a thermoset resin matrix wherein the electrically conductive fibers are braided or arranged helically;**

**fixedly attaching a first and second end piece respectively to the first and second ends of the composite, wherein the first end piece, the second end piece, and the composite form a heating/inflation module;**

**removably attaching a pre-preg to an outer surface of the composite, wherein the pre-preg includes a structural fiber matrix supporting a heat curable resin;**

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positioning the module with the attached pre-preg into the conduit at a damaged location;

inflating the module to a predetermined internal air pressure to expand the composite and press the pre-preg against an inside surface of the conduit;

curing the resin of the pre-preg by causing an electrical current to flow in the heating element to resistively heat the module to a predetermined temperature; and deflating the module and removing it from the conduit.

Claim 21 (Cancelled)

22. (Currently Amended) A system for in-situ repair of a conduit, comprising:

an apparatus including an elastomeric composite having a first end and a second end, wherein the composite includes a non-ferrous heating element comprising electrically conductive fibers comprising carbon fibers, graphite fibers, carbon filaments or graphite filaments and disposed within a thermoset resin matrix wherein the electrically conductive fibers are braided or arranged helically;

a first end piece fixedly attached to the first end of the composite and having an air port for communication with a compressed air source, a vacuum port for communication with a vacuum supply source and at least one electrical cable port to convey electric current to the non-ferrous heating element from a power supply source;

a second end piece fixedly attached to the second end of the composite, wherein the composite, the first end piece, and the second end piece form an inflation chamber; and,

a pre-preg removably attached to an outer surface of the composite of the apparatus, the pre-preg including a structural fiber matrix supporting a heat curable resin.

Claims 23-52 (Cancelled)